Modifications to Com-plete Modules

This chapter summarizes maintenance procedures for Com-plete modules under the following headings:

- Overview
- Link Editing Com-plete Modules
- Link Edit Return Codes
- Com-plete Support Issues

Overview

Alterations to the Com-plete modules must be performed in a consistent and documented manner to ensure the stability of the product.

Com-plete modules may need to be altered with fixes supplied by SOFTWARE AG. In addition, system-wide modifications can be implemented to customize the operation of the Com-plete nucleus and its utility programs to the needs of the installation. The following types of customizations are acceptable:

- Using the APPLYMOD sysparm that alters the functioning of Com-plete;
- Adding user exit routines to Com-plete and utility programs for security and customization;
- Modification of maps to present terminal users with an organization’s specific screen.

Link Editing Com-plete Modules

As all user exits are now loaded as standard, there should be no reason to relink Com-plete modules. However, for reasons of compatability, exits that were previously documented as being linked with Com-plete can still be linked. This facility will be dropped in a future release of Com-plete. If a Com-plete module needs to be linked with a user-written module, the resultant load module must be stored in a user data set so that the original is still available. If a problem is not reproduceable with the supplied Com-plete modules, then it will not be accepted as a product problem.

In the case of maintenance being applied to modules that must be linked, you are recommended to copy the applicable module from the Com-plete distribution library to a Com-plete zap library, zap it there and relink it to the zap library. When you have verified that the zap has gone in correctly, the applicable modules can be copied back to the distribution library. On the other hand, you may prefer not to alter the distribution library and leave the zapped modules on the zap library. However, in this case, you must ensure that the module(s) on the zap library are not overwritten, otherwise the zap update is lost.

The linked edits for the nucleus and utilities for MVS and FACOM is found in the member $LINKxx, where *xx* stands for MVS or F4 as appropriate to your operating system.

Note:
Newly linkedited utilities may or may not become available in the system immediately due to a fixed number of BLDL/LOAD list entries held for the most recently used modules while Com-plete is active. Use the ULIB REFRESH command to ensure a newly linkedited module becomes available immediately.

Link Edit Return Codes

In most cases, the link-edits for Com-plete should have a return code of 00, otherwise the results of executing the newly linked module are unpredicatable. The following are the link edits that can be expected to finish with a return code of 04. Anything higher is again an error and execution of this module causes unpredictable results.

TUDUMP
TUMSUTIL
TUSACAPT
TUSDUTIL
UED
UPWD

Com-plete Support Issues

SAGSIS Problem System

Software AG provides a data base all customer requests and reported problems. Access to this data base is made via the SAGSIS Problem System to which all affiliates online to the Reston or Darmstadt data centres have access.

SAGSIS has two different entities, the "request" and the "problem". When a customer initially contacts the support centre, generally a SAGSIS request is entered depending on the nature of the contact. For example, a question from a customer already found in SAGSIS does not need to be entered again. If a Request is set up, the customer will receive a request number. This is a unique reference number for this particular customer contact and should be used to identify any materials sent to SAG in relation to this contact.

In some cases, the request will be found to be a software problem. In this case, a problem entry is set up to describe the actual problem and the solution to the problem. This will have a unique problem number. However, the only numbers that concern the customer are their individual request numbers. All data related to the request is then linked to this number.

It is in the interest of all parties concerned to have as much data in this data base as possible because the more data there is, the more solutions can be found quickly in the data base. For this reason, we strongly recommend that all customer problems are registered through the support centres and, where applicable, that customers always ensure that they receive a request number for the "problem" report.

Problem Reporting

To ensure a fast turnaround time when reporting a problem, the following information must be provided, depending on the type of problem.

1. Version, release and SM level of the Com-plete in which the problem occurred;

2. Type and level of operating system under which the Com-plete is running;

3. Version, release and SM level of products related to the problem (eg. Natural, Adabas);

4. Message numbers where applicable;

5. System log for a period of time before the actual event;

6. Sequence of actions used to cause the problem if available;

7. Name and offset in module where an abend occurred if applicable.

On the basis of the above information, a search can be made within the system. If this does not lead to a solution, the above information must be supplemented with the following.

1. Dump resulting from the problem if applicable;

2. Output from the job where the problem occurred;

3. Any other information that may be requested by the support personnel.

Where practical information can be sent on paper (for example, thread dumps), this is recommended. However, for larger dumps, the dump should be formatted and contain all the relevant control blocks and storage areas. Depending on the nature of the problem, only the actual Com-plete areas may be necessary. However, you should consult with support personnel as to what they require.

Com-plete Problem Solutions

When a problem is identified and a correction of some nature is required, the correction may take any of the following formats.

1. A zap which must be applied to various Com-plete modules;

2. A source update which indicates the source member on the distribution to be changed and what should be changed there;

3. An update tape with updated modules and source members;

4. A new System Maintenance level of the product;

5. An acceptance of the request as a change enhancement request to be included in a future release of Com-plete.

The normal situation is a simple zap which is discussed in the section **Com-plete Fixes** below. Situations where a source update is required can sometimes be corrected with a description of what needs to be changed. However, if the changes are so great that the possibility of errors exists, the updated source will be distributed by tape.

In the case where a correction is so complex that it cannot be zapped, if the problem is not a major one, the request will be treated as a change enhancement request. If the problem causes major problems which are fixed in a system maintenance level, the user will be requested to go to that particular level. If it is not fixed, the correction will be distributed on tape with replacement modules and source members as necessary.

Com-plete Fixes

From Com-plete 4.5 on, a new zap system has been in use to track zaps on a very simple basis and present a standard format for the zap when it is sent to customers. It is also used to avoid a customer receiving all operating system portions of the zap. In the future, you should only receive the zap data that applies to your operating system.

The system also provides for the orderly correcting of the original problem in source and the creating of SM levels. This will lead to more stable SMs in the future and will avoid zaps being left out of the newly sourced level.

The zap name/number has the following format:

CPvrnnn

where

CP	is constant for Com-plete
vr	is the version/release that the zap applies to
nnn	A unique number for the zap

Only one TLFIX module is now used in Com-plete to record all applied fixes. This offset in the module relating to the number of the fix is, as before, zapped to indicate that the zap is applied However, the information zapped in is different depending on the status of the zap. If a zap has been applied to an SM level, the the appropriate SM level number is zapped into the applicable location so that you can see what SM level a zap belongs to, or on which SM level tape the zap can be expected to appear. If the zap does not have a currently assigned SM level, then the value "ff" is set to simply indicate that the zap is applied. The ZO function of UUTIL then uses this information to give a more informative view of what zaps are applied.

The Zap Format

Zaps are distributed in the following format. Some of the information may be of use to you and some is not. Each heading is described following this example.

```
* Identification:  a
* Problem:   b
* Product:   c
* Creator:   d
* Creation date:  e
* Zap Status 2:  g
* Release date:  h
* OPSYS:   i
* Description    j
*
*
*
NAME TLFIX TLFIX   LOADLIB(TLFIX)
VER nnnn 00  IS ZAP APPLIED ?   (k)
REP nnnn FF  FLAG AS APPLIED, NO SM LEVEL ASSIGNED (k)
REP nnnn ss   FLAG AS APPLIED, SM LEVEL ss          (k)
*
NAME mmmmmmmm cccccccc LOADLIB(llllll1,lllllll2,....,lllllln)  (l)
```

```
VER xxxx xxxx,xxxx,xxxx      code         (m)
REP xxxx xxxx,xxxx,xxxx yyyy code         (m)
*
IDRDATA a
```

code	Description
a	This is the number identifying the zap.
b	This is the problem number associated with the zap. Please note that this is an internal problem number, possibly connected to your request; however, it bears no relation to any request numbers that you may have.
c	This is the product name, this is the constant COMPLETE.
d	This is the user ID of the SAG person who created then zap.
e	This is the date and time the zap was created.
g	This is the status 2 of the zap and gives additional information about the zap. It is not always specified, in which case it does not appear. However, when it is there, it is followed by a short explanation as to why it has that status 2. When this is the case, you should consult support personnel as to whether it is safe to apply the zap. The following are the possible status 2 values.
	Error This indicates that the zap has caused problems. In general, zaps with this status 2 must not be applied. Held This is more information as to what the zap does. It generally relates to effects noticed after the zap is created.
h	The release date is the date and time when the zap is considered eligible for general release. Normally you only receive zaps of this nature. However, in exceptional circumstances or when you are testing a zap for a problem, a zap will be sent to a customer and the string not QA’ed appears in this field.
i	This is the operating system that the zap relates to. The zap statements are only printed and valid for this operating system. The possible operating systems are listed below. Some operating sytems are "generic", which indicates that the zap is good for the corresponding "set". *
j	This is a short description of what the zap fixes. A more detailed description can be found in the SAGSIS problem entry.
k	"nnnn" here is the offset in the TLFIX module that reflects the zap number. The REP line will be one or the other depending on the status of the zap as stated previously.

code	Description
l	"nnnnnnn" is the name of the module, "cccccccc" is the CSECT name and "llllll1" to "llllllln" is the name of the load module(s) into which this module is linked. If the module name is the same as the load module name, no linking is necessary. If the module name is not the same as the load module name, the linkedit for the load module must be taken and the module relinked as explained at the beginning of this chapter.
m	The various lines of VERs and REPs then follow, the comments to the right are simply for documentation purposes.
n	The zaps for VSE are shipped in MSHP format.

*

```
ALL - Good for all operating systems and levels
MVS - MVS/XA, MVS/ESA, OS/390
OS  - F4, VOS, MVS/ESA, OS/390
VSE - VSE/ESA 2.1 and higher
```

Com-plete Maintenance Updates

As zaps are accepted, they will be applied to a SM+1 frozen library, that is, if the current release is 5.1.1, the zaps will be applied to a 5.1.2 frozen library. System Maintenence levels of Com-plete are planned to be be released every three to four months. When these SMs are distributed, a fourth data set will exist on the installation tape with the various zaps applied to the load library in source. If you do not wish to install the SM tape, the zaps are then available in source to be applied on an adhoc basis.